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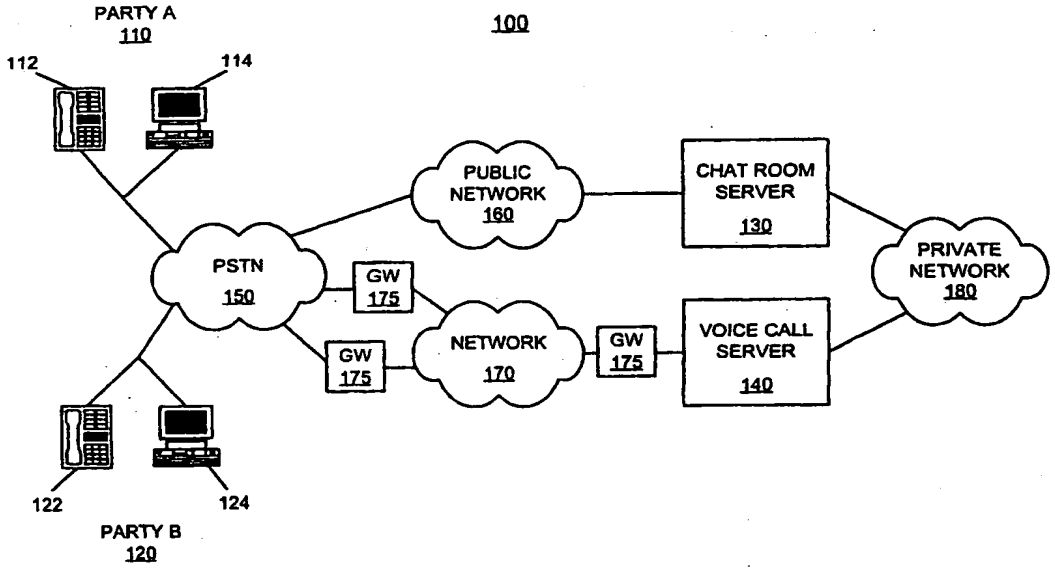
(54) Title: SYSTEMS AND METHODS FOR PROVIDING CHAT ROOM PARTICIPANTS WITH PRIVATE AND ANONYMOUS VOICE COMMUNICATION



(57) Abstract: A system (100) provides anonymous voice communication between at least two parties (110, 120). The system includes a chat room server (130) connected to a voice call server (140). The chat room server (130) connects the parties (110, 120) together for text messaging, receives notification from the parties (110, 120) of a desire to engage in voice communication, and requests permission for the voice communication. The voice call server (140) receives the request from the chat room server (130), determines that the voice communication can occur, receives a call from one of the parties, and connects the call to the other party for anonymous voice communication.

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SYSTEMS AND METHODS FOR PROVIDING CHAT ROOM PARTICIPANTS WITH PRIVATE AND ANONYMOUS VOICE COMMUNICATION

Technical Field

The present invention relates generally to messaging systems and, more particularly, to systems and methods for providing private and anonymous voice communication using standard telephones.

Background Art

Many on-line computer service providers offer their subscribers the opportunity to meet and converse anonymously. A subscriber can typically choose from a variety of "chat rooms" (i.e., groups of computer users that exchange text files that are conversational in nature) in which to exchange text files about a particular subject of interest. Upon entering a particular chat room, the subscriber may choose to have a private conversation with one or more other subscribers within the same chat room. Each private conversation is private from the standpoint that the conversation is separate from the ongoing conversation within the chat room itself. In other words, each private conversation between two or more subscribers is essentially a new chat room.

Many times, subscribers within a chat room desire to engage in interactive voice communication. For this to occur, one of the subscribers must divulge his or her telephone number to the other subscriber so that a telephone call can take place between them. This, however, defeats the purpose of the anonymous nature of the chat room.

Some conventional systems, using technology, such as Internet telephony (e.g., voice-over-Internet protocol (VoIP)), offer interactive voice communication between two anonymous chat room participants. These systems, however, have two major disadvantages. First, they require special equipment in the way of a microphone and headset, an Internet handset, etc. Second, the call quality is often very poor, especially for dial-up subscribers.

As a result, a need exists for a communication system that permits chat room participants to engage in high quality, private, and anonymous voice communication at low cost.

Disclosure of Invention

Systems and methods consistent with the present invention address this need by permitting chat room participants to engage in private and anonymous voice communication using standard telephones.

In accordance with the purpose of the invention as embodied and broadly described herein, a system provides anonymous voice communication between at least two parties. The system includes a chat room server connected to a voice call server. The chat room server connects the parties together for text messaging, receives notification from the parties of a desire to engage in voice communication, and requests permission for the voice communication. The voice call server receives the request from the chat room server, determines that the voice communication can occur, receives a call from one of the parties, and connects the call to the other party for anonymous voice communication.

In another implementation consistent with the present invention, an apparatus provides anonymous voice communication between at least two parties. The apparatus includes a memory that stores data and a processor. The processor connects the parties together for text messaging, receives notification from the parties of a desire to engage in voice communication, determines that the voice communication can occur, receives a call from one of the parties, and connects the call to the other party for anonymous voice communication.

In yet another implementation consistent with the present invention, a voice call server includes a memory that stores data and a processor. The processor receives notification that at least two parties desire to engage in voice communication, generates a call identifier for the voice communication, sends the call identifier to one of the parties, receives a call from the one party having the call identifier, and connects the call to the other party for anonymous voice communication.

In a further implementation consistent with the present invention, a method for doing business includes providing chat room service to a plurality of subscribers and providing voice communication to the subscribers. The chat room service permits the subscribers to engage in text messaging. The voice communication service permits a subset of the subscribers to engage in private, anonymous voice communication using standard telephones.

Brief Description Of Drawings

Fig. 1 is a diagram of an exemplary system consistent with the present invention;

Fig. 2 is a detailed diagram of an exemplary chat room server in the system of Fig. 1;

Fig. 3 is a detailed diagram of an exemplary voice call server in the system of Fig. 1; and

Figs. 4A and 4B are flowcharts of processing for establishing voice communication between chat room participants in a manner consistent with the present invention.

Best Mode for Carrying Out the Invention

The following detailed description of the invention refers to the accompanying drawings. The same reference numbers in different drawings identify the same or similar elements. Also, the following detailed description does not limit the invention. Instead, the scope of the invention is defined by the appended claims and equivalents.

Systems and methods consistent with the present invention provide chat room participants with private, anonymous voice communication using standard telephones.

Exemplary System

Fig. 1 is an exemplary system 100 consistent with the present invention. The system 100 includes party A devices 110 and party B devices 120 connected to a chat room server 130 and a voice call server 140 via the Public Switched Telephone Network (PSTN) 150, a public network 160, and a network 170 via gateways 175. The chat room server 130 and voice call server 140 also connect to each other via a private network 180.

The party A devices 110 include a telephone 112 and a computer terminal 114. The telephone 112 may include any conventional device (wired or wireless)

that can place and receive telephone calls. The computer terminal 114 may include a personal computer, or a similar device, that can access a chat room over a network via a wired or wireless connection. The party B devices 120 also include a telephone 122 and a computer terminal 124. The telephone 122 may include any conventional device (wired or wireless) that can place and receive telephone calls. The computer terminal 124 may include a personal computer, or a similar device, that can access a chat room over a network via a wired or wireless connection. Even though Fig. 1 shows only two parties connected to the PSTN 150, one of ordinary skill in the art would recognize that more parties may be connected.

The party A and party B devices 110 and 120 connect to public network 160 and network 170 via the PSTN 150. Public network 160 may include the Internet, an intranet, a local area network (LAN), a wide area network (WAN), etc. The network 160 facilitates communication between devices connected to the PSTN 150 and the chat room server 130. The network 170 may also include the Internet, an intranet, a LAN, a WAN, or some equivalent network. The network 170 routes information between devices connected to the PSTN 150 and the voice call server 140 via one or more conventional gateways 175.

The chat room server 130 operates one or more chat rooms for use by parties over the public network 160. Fig. 2 is an exemplary diagram of the chat room server 130. The server 130 may include a bus 210, a processor 220, a memory 230, an input unit 240, an output unit 250, a bridging unit 260, and a communication interface 270. The bus 210 permits communication among the components of the chat room server 130. The processor 220 may be any type of conventional processor or microprocessor that interprets and executes instructions. The memory 230 may be a RAM or other dynamic storage device that stores information and instructions to be executed by the processor 220; a ROM or other type of static storage device that stores static information and instructions for use by the processor 220; and/or some other type of magnetic or optical recording medium and its corresponding drive.

The input unit 240 may include any conventional mechanism that permits an operator to input information into the chat room server 130, such a keyboard, a

mouse, a pen, voice recognition and/or biometric mechanisms, etc. The output unit 250 may include any conventional mechanism that outputs information to the operator, including a display, a printer, a pair of speakers, etc. The bridging unit 260 connects, or bridges, chat room participants together. The bridging unit 260 uses either hardware or software, or a combination of the two, to bridge the participants so that they may communicate by exchanging text files.

The communication interface 270 may include any transceiver-like mechanism that enables the chat room server 130 to communicate with other devices and/or systems. For example, the communication interface 270 may include mechanisms for communicating via a network, such as networks 160 and 180 (Fig. 1).

Returning to Fig. 1, the chat room server 130 connects to the voice call server 140 via the private network 180. The private network 180 may include the Internet, an intranet, a LAN, a WAN, or some equivalent network.

The voice call server 140 controls the establishment of a voice call between parties A and B. Fig. 3 is an exemplary diagram of the voice call server 140. The server 140 may include a bus 310, a processor 320, a memory 330, an input unit 340, an output unit 350, a call bridging unit 360, an interactive voice response (IVR) unit 370, and a communication interface 380. The bus 310 permits communication among the components of the voice call server 140. The processor 320 may be any type of conventional processor or microprocessor that interprets and executes instructions. The memory 330 may be a RAM or other dynamic storage device that stores information and instructions to be executed by the processor 320; a ROM or other type of static storage device that stores static information and instructions for use by the processor 320; and/or some other type of magnetic or optical recording medium and its corresponding drive.

The input unit 340 may include any conventional mechanism that permits an operator to input information into the voice call server 140, such a keyboard, a mouse, a pen, voice recognition and/or biometric mechanisms, etc. The output unit 350 may include any conventional mechanism that outputs information to the operator, including a display, a printer, a pair of speakers, etc.

The call bridging unit 360 connects, or bridges, two or more parties together. The call bridging unit 360 uses either hardware or software, or a combination of the two, to bridge the parties so that they may engage in voice communication. The IVR unit 370 uses hardware and/or software to interact with a caller to provide or solicit information.

The communication interface 380 may include any transceiver-like mechanism that enables the voice call server 140 to communicate with other devices and/or systems. For example, the communication interface 380 may include mechanisms for communicating via a network, such as networks 170 and 180 (Fig. 1).

Exemplary System Processing

Figs. 4A and 4B are flowcharts of processing for connecting two chat room participants together for voice communication in a private, anonymous manner consistent with the present invention. Processing begins when party A and party B log into the chat room server 130 over public network 160 [step 405] (Fig. 4A). Parties A and B may, for example, log into the chat room server 130 via an Internet Service Provider (ISP), or in some similar manner, using computer terminals 114 and 124, respectively.

Assume that parties A and B enter a chat room and initiate a messaging session [step 410]. Assume further that parties A and B agree to participate in a voice call through the voice call server 140 [step 415]. One or both of the parties may pay for this service with their service provider (i.e., ISP). In this case, the ISP may supply the party with an account number and possibly a password for the service.

Once the parties have agreed to the voice call, the parties inform the chat room server 130, and one of the parties, such as party B, provides the chat room server 130 with a telephone number by which party B can be reached [step 420]. The chat room server 130 requests that the voice call server 140 reserve two voice channels for the voice call between parties A and B [step 425]. The chat room server 130 may make the request over the private network 180.

In response to the request, the voice call server 140 reserves two voice channels and assigns a unique identifier to the reserved voice call [step 430]. The voice call server 140 then informs the chat room server 130 that the voice channels have been reserved. The chat room server 130, in turn, informs the parties that the call can be established [step 435].

The chat room server 130 then sends a local telephone number for the voice call server 140 and the unique identifier to party A via the computer terminal 114 [step 440]. At this time, a process operating on computer terminal 114 may disable party A's connection to the chat room server 130. This may be unnecessary where the telephone 112 is unaffected by the computer terminal's connection to the chat room server 130, such as when the computer terminal 114 connects to the chat room server 130 via a separate telephone line, a LAN, a cable modem, a digital subscriber line (DSL) modem, etc.

Party A then dials the local telephone number using the telephone 112 [step 445]. The local telephone number directs the call to the voice call server 140 via PSTN 150 and possibly network 170. The voice call server 140 receives the call [step 450] and, using IVR unit 370 (Fig. 3), prompts party A for an account number, a password, and a caller identifier [step 455]. The call identifier is the unique identifier that the chat room server 130 earlier transmitted to party A. The server 140 verifies the information provided by party A and may later use the information for billing purposes [step 460].

After receiving the information from party A, the voice call server 140 informs the chat room server 130 that party A is ready for call completion [step 465]. In response, the chat room server 130, via the computer terminal 124, informs party B that the call from party A is ready to be put through [step 470]. At this time, a process operating on the computer terminal 124 may disable party B's connection to the chat room server 130. This may be unnecessary where the telephone 122 is unaffected by the computer terminal's connection to the chat room server 130, such as when the computer terminal 124 connects to the chat room server 130 via a separate telephone line, a LAN, a cable modem, a digital subscriber line (DSL) modem, etc.

The voice call server 140 then places a call to the telephone number that party B earlier provided [step 475]. Assume that the telephone number directs the call to the telephone 122. The voice call server 140 may place the call to the telephone 122 via the network 170 and PSTN 150 or solely via PSTN 150. Once party B answers the call, the two parties may engage in voice communication.

The call bridging unit 360 (Fig. 3) within the voice call server 140 bridges the two legs of the call. The server 140 may drop the call when one of the parties hangs up. It might be possible for party A to prepay for this service; in which case, the server 140 may drop the call when party A's prepaid time expires.

Conclusion

Systems and methods consistent with the present invention provide anonymous, private voice communication between possibly disparate parties using a local telephone number and ordinary telephones.

The foregoing description of preferred embodiments of the present invention provides illustration and description, but is not intended to be exhaustive or to limit the invention to the precise form disclosed. Modifications and variations are possible in light of the above teachings or may be acquired from practice of the invention. The scope of the invention is defined by the claims and their equivalents.

For example, the description with regard to Figs. 4A and 4B described processing for establishing voice communication between two parties. One of ordinary skill in the art would recognize that more than two parties may be bridged together for anonymous, private voice communication.

In addition, the chat room server and voice call server have been described as separate devices connected via a private network. In an alternative implementation consistent with the present invention, the chat room server and voice call server may be modules implemented as a single device.

Claims:

1. A system that provides anonymous voice communication between a plurality of parties, comprising:

a chat room server configured to connect the parties together for text messaging, receive notification from the parties of a desire to engage in voice communication, and request permission for the voice communication; and

a voice call server configured to receive the request from the chat room server, determine that the voice communication can occur, receive a call from one of the parties, and connect the call to the other parties for anonymous voice communication.

2. The system of claim 1, wherein when requesting permission, the chat room server is configured to request reservation of voice channels for the voice communication.

3. The system of claim 2, wherein when determining that the voice communication can occur, the voice call server is configured to determine whether the voice channels are available, and reserve the voice channels when the voice channels are available.

4. The system of claim 1, wherein the chat room server is further configured to obtain contact information for the other parties.

5. The system of claim 4, wherein when connecting the call to the other parties, the voice call server is configured to use the contact information for the other parties to connect the call to the other parties.

6. The system of claim 1, wherein the voice call server is further configured to generate a call identifier for the voice communication and send the call identifier to the one party.

7. The system of claim 6, wherein when sending the call identifier to the one party, the voice call server is configured to transmit the call identifier to the one party via the chat room server.

8. The system of claim 6, wherein the chat room server is further configured to receive the call identifier from the voice call server and send the call identifier and a local telephone number to the one party.

9. The system of claim 8, wherein when receiving the call from the one party, the voice call server is configured to receive the call dialed using the local telephone number.

10. The system of claim 6, wherein when receiving the call from the one party, the voice call server is configured to authenticate the one party by obtaining and verifying the call identifier.

11. The system of claim 1, wherein when receiving the call from the one party, the voice call server is configured to authenticate the one party by verifying an identity of the one party.

12. A system for providing anonymous voice communication between a plurality of parties, comprising:

means for connecting the parties together for text messaging;

means for receiving notification from the parties of a desire to engage in voice communication;

means for determining that the voice communication can occur;

means for receiving a call from one of the parties; and

means for connecting the call to the other parties for anonymous voice communication

13. A method for providing anonymous voice communication in a network connecting a plurality of parties to a chat room server and a voice call server, the method comprising:

connecting, by the chat room server, the parties together for text messaging;

receiving notification from the parties of a desire to engage in voice communication;

determining that the voice communication can occur;

receiving a call from one of the parties at the voice call server; and

connecting the call, by the voice call server, to the other parties for anonymous voice communication.14.The method of claim 13, wherein the determining that the voice communication can occur includes:

requesting, by the chat room server, that the voice call server reserve voice channels for the voice communication.

15. The method of claim 14, wherein the determining that the voice communication can occur further includes:

determining, by the voice call server, whether the voice channels are available in response to the request from the chat room server, and

reserving the voice channels when the voice channels are available.

16. The method of claim 13, further comprising:

obtaining, by the chat room server, contact information for the other parties.

17. The method of claim 16, wherein the connecting the call to the other parties includes:

using the contact information for the other parties to connect the call to the other parties.

18. The method of claim 13, further comprising:

generating a call identifier for the voice communication; and

sending the call identifier to the one party.

19. The method of claim 18, wherein the sending the call identifier includes:

transmitting a local telephone number, along with the call identifier, to the one party.

20. The method of claim 19, wherein the receiving the call from the one party includes:

receiving the call dialed using the local telephone number.

21. The method of claim 18, wherein the receiving the call from the one party includes:

authenticating the one party by obtaining and verifying the call identifier.

22. The method of claim 13, wherein the receiving the call from the one party includes:

authenticating the one party by verifying an identity of the one party.

23. An apparatus that provides anonymous voice communication between at least two parties, comprising:

a memory that stores data; and

a processor, connected to the memory, that connects the parties together for text messaging, receives notification from the parties of a desire to engage in voice communication, determines that the voice communication can occur, receives a call from one of the parties, and connects the call to the other party for anonymous voice communication.

24. The apparatus of claim 23, wherein when determining that the voice communication can occur, the processor is configured to determine whether voice

channels are available for the voice communication, and reserve the voice channels when the voice channels are available.

25. The apparatus of claim 23, wherein the processor is further configured to obtain contact information for the other party.

26. The apparatus of claim 25, wherein when connecting the call to the other party, the processor is configured to use the contact information for the other party to connect the call to the other party.

27. The apparatus of claim 23, wherein the processor is further configured to generate a call identifier for the voice communication and send the call identifier to the one party.

28. The apparatus of claim 27, wherein when sending the call identifier to the one party, the processor is configured to send a local telephone number, along with the call identifier, to the one party.

29. The apparatus of claim 28, wherein when receiving the call from the one party, the processor is configured to receive the call dialed using the local telephone number.

30. The apparatus of claim 27, wherein when receiving the call from the one party, the processor is configured to authenticate the one party by obtaining and verifying the call identifier.

31. The apparatus of claim 23, wherein when receiving the call from the one party, the processor is configured to authenticate the one party by verifying an identity of the one party.

32. A method for providing anonymous voice communication in a network connecting a plurality of parties to a server, the method, executed by the server, comprising:

connecting at least two of the parties together for text messaging;

receiving notification from the parties of a desire to engage in voice communication;

determining that the voice communication can occur;

receiving a call from one of the parties; and

connecting the call to the other party for anonymous voice communication.

33. The method of claim 32, wherein the determining that the voice communication can occur includes:

determining whether voice channels are available for the voice communication, and

reserving the voice channels when the voice channels are available.

34. The method of claim 32, further comprising:

obtaining contact information for the other party.

35. The method of claim 34, wherein the connecting the call to the other party includes:

using the contact information for the other party to connect the call to the other party.

36. The method of claim 32, further comprising:

generating a call identifier for the voice communication; and

sending the call identifier to the one party.

37. The method of claim 36, wherein the sending the call identifier includes:

transmitting a local telephone number, along with the call identifier, to the one party.

38. The method of claim 37, wherein the receiving the call from the one party includes:

receiving the call dialed using the local telephone number.

39. The method of claim 36, wherein the receiving the call from the one party includes:

authenticating the one party by obtaining and verifying the call identifier.

40. The method of claim 32, wherein the receiving the call from the one party includes:

authenticating the one party by verifying an identity of the one party.

41. A voice call server in a network connecting a plurality of parties, comprising:

a memory that stores data; and

a processor, connected to the memory, that receives notification that at least two of the parties desire to engage in voice communication, generates a call identifier for the voice communication, sends the call identifier to one of the parties, receives a call from the one party having the call identifier, and connects the call to the other party for anonymous voice communication.

42. The voice call server of claim 41, wherein the processor is further configured to determine whether to permit the voice communication.

43. The voice call server of claim 42, wherein when determining whether to permit the voice communication, the processor is configured to determine whether

voice channels are available for the voice communication and reserve the voice channels when the voice channels are available.

44. The voice call server of claim 41, wherein when receiving the call from the one party, the processor is configured to authenticate the one party by obtaining and verifying the call identifier.

45. The voice call server of claim 41, wherein when receiving the call from the one party, the processor is configured to authenticate the one party by verifying an identity of the one party.

46. A method of doing business, comprising:

providing chat room service to a plurality of subscribers, the chat room service permitting the subscribers to engage in text messaging; and

providing voice communication service to the subscribers, the voice communication service permitting a subset of the subscribers to engage in private, anonymous voice communication using standard telephones.

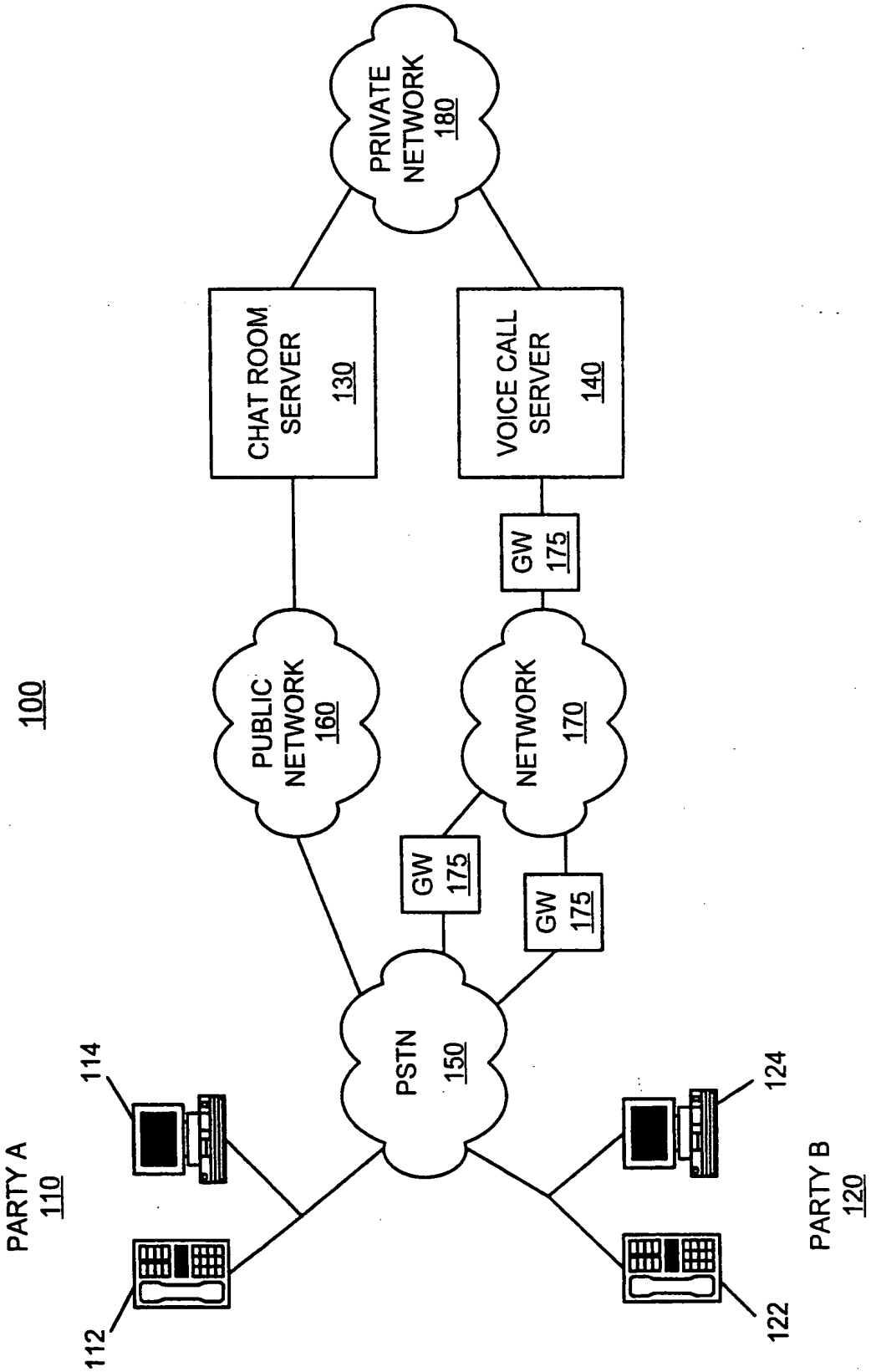
100
PRIVATE NETWORK 180
CHAT ROOM SERVER 130
VOICE CALL SERVER 140
GW 175
PUBLIC NETWORK 160
NETWORK 170
GW 175
GW 175
PSTN 150
PARTY A 110
114
112
PARTY B 120
124
122

FIG. 1

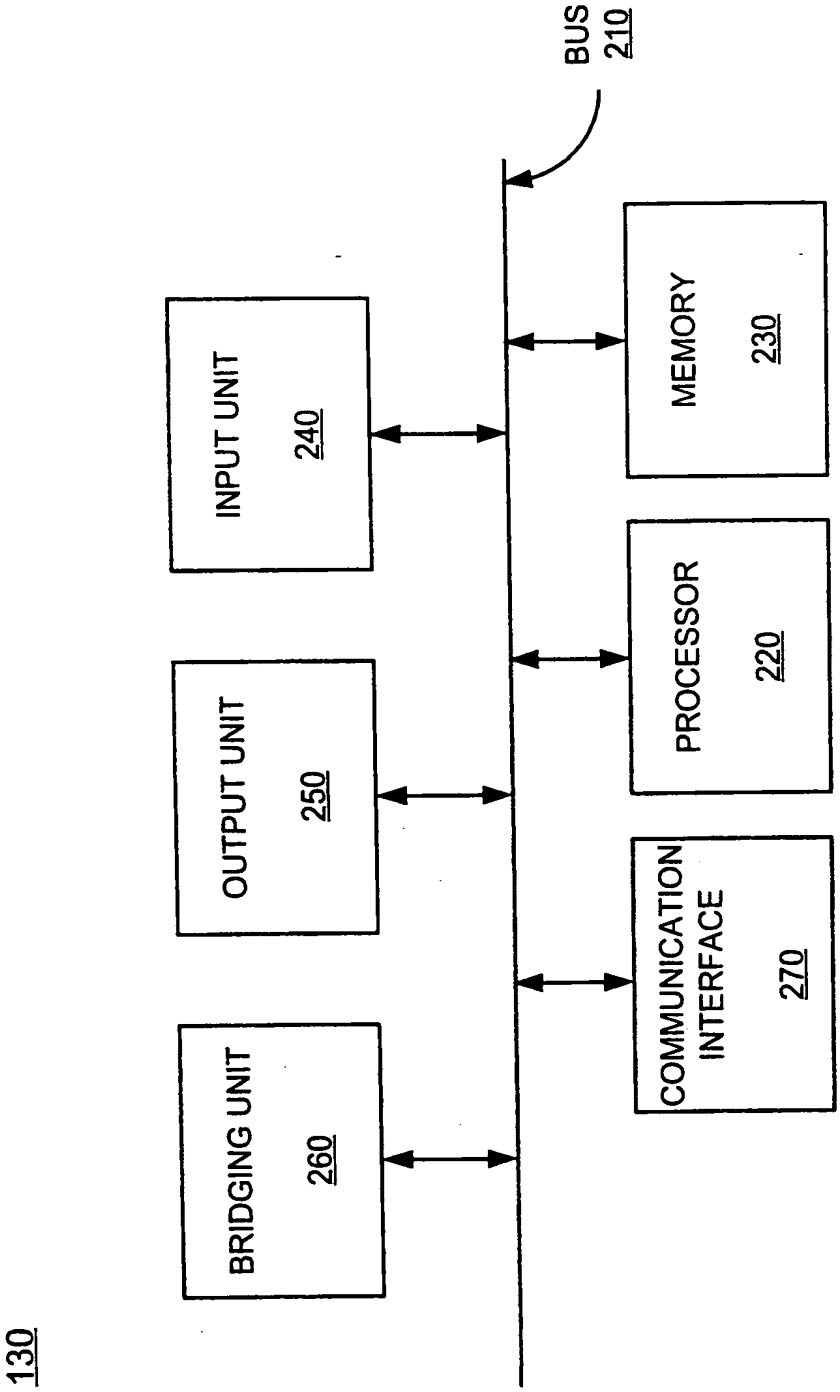
130
BUS
210
INPUT UNIT
240
OUTPUT UNIT
250
BRIDGING UNIT
260
MEMORY
230
PROCESSOR
220
COMMUNICATION
INTERFACE
270

FIG. 2

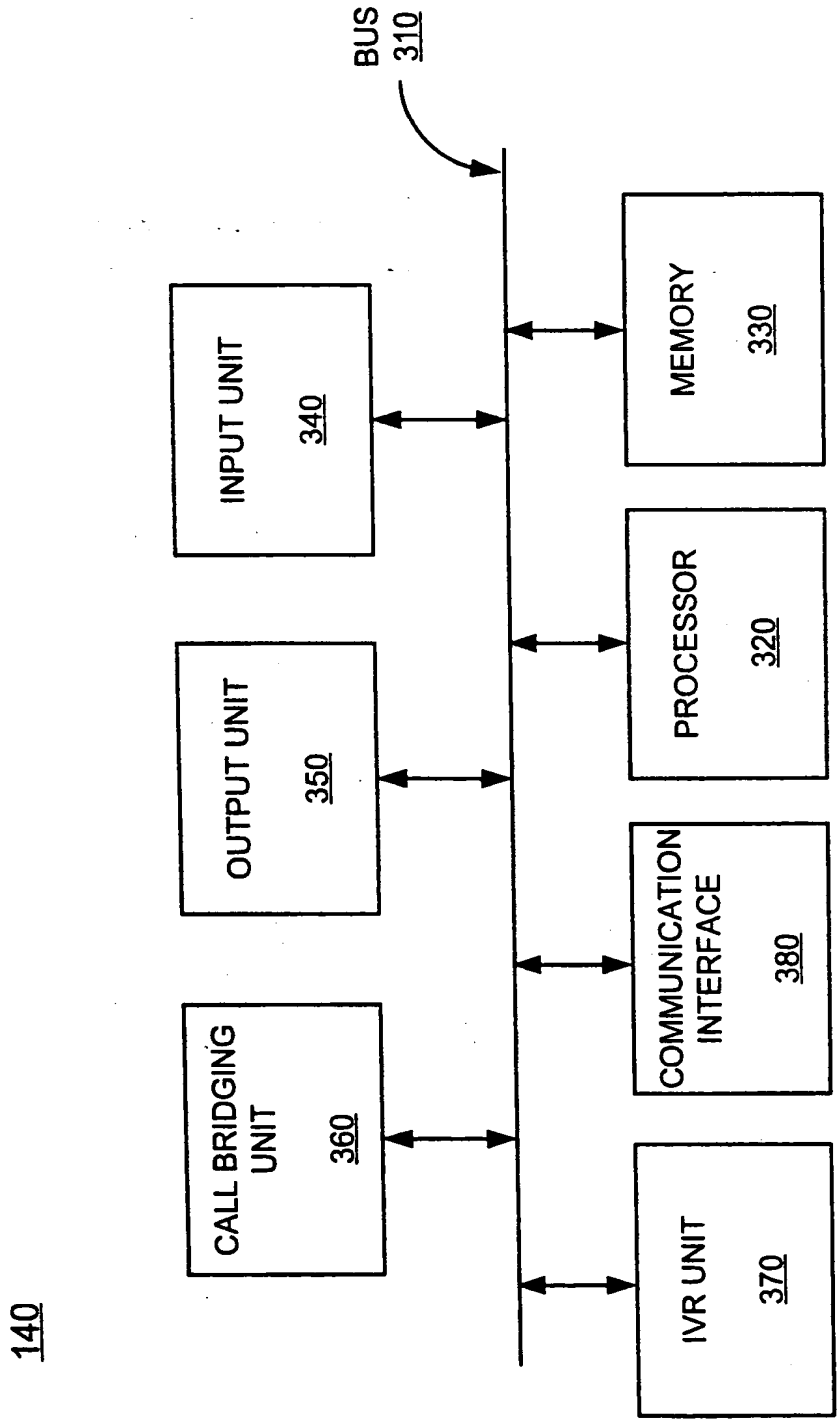
140
BUS
310
INPUT UNIT
340
OUTPUT UNIT
350
CALL BRIDGING UNIT
360
MEMORY
330
PROCESSOR
320
COMMUNICATION INTERFACE
380
IVR UNIT
370

FIG. 3

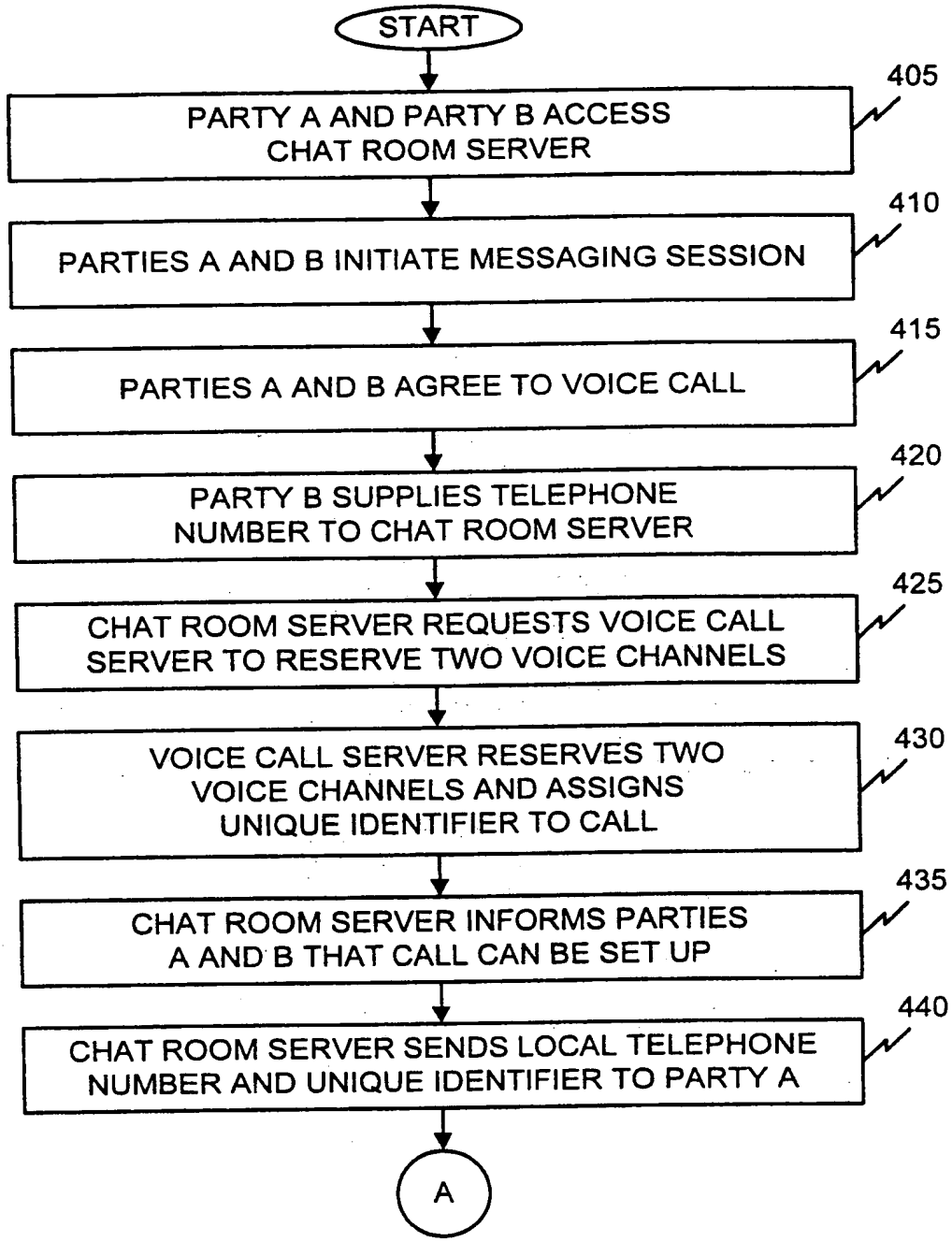
START
PARTY A AND PARTY B ACCESS CHAT ROOM SERVER
405
PARTIES A AND B INITIATE MESSAGING SESSION
410
PARTIES A AND B AGREE TO VOICE CALL
415
PARTY B SUPPLIES TELEPHONE NUMBER TO CHAT ROOM SERVER
420
CHAT ROOM SERVER REQUESTS VOICE CALL SERVER TO RESERVE TWO VOICE CHANNELS
425
VOICE CALL SERVER RESERVES TWO VOICE CHANNELS AND ASSIGNS UNIQUE IDENTIFIER TO CALL
430
CHAT ROOM SERVER INFORMS PARTIES A AND B THAT CALL CAN BE SET UP
435
CHAT ROOM SERVER SENDS LOCAL TELEPHONE NUMBER AND UNIQUE IDENTIFIER TO PARTY A
440
A

FIG. 4A

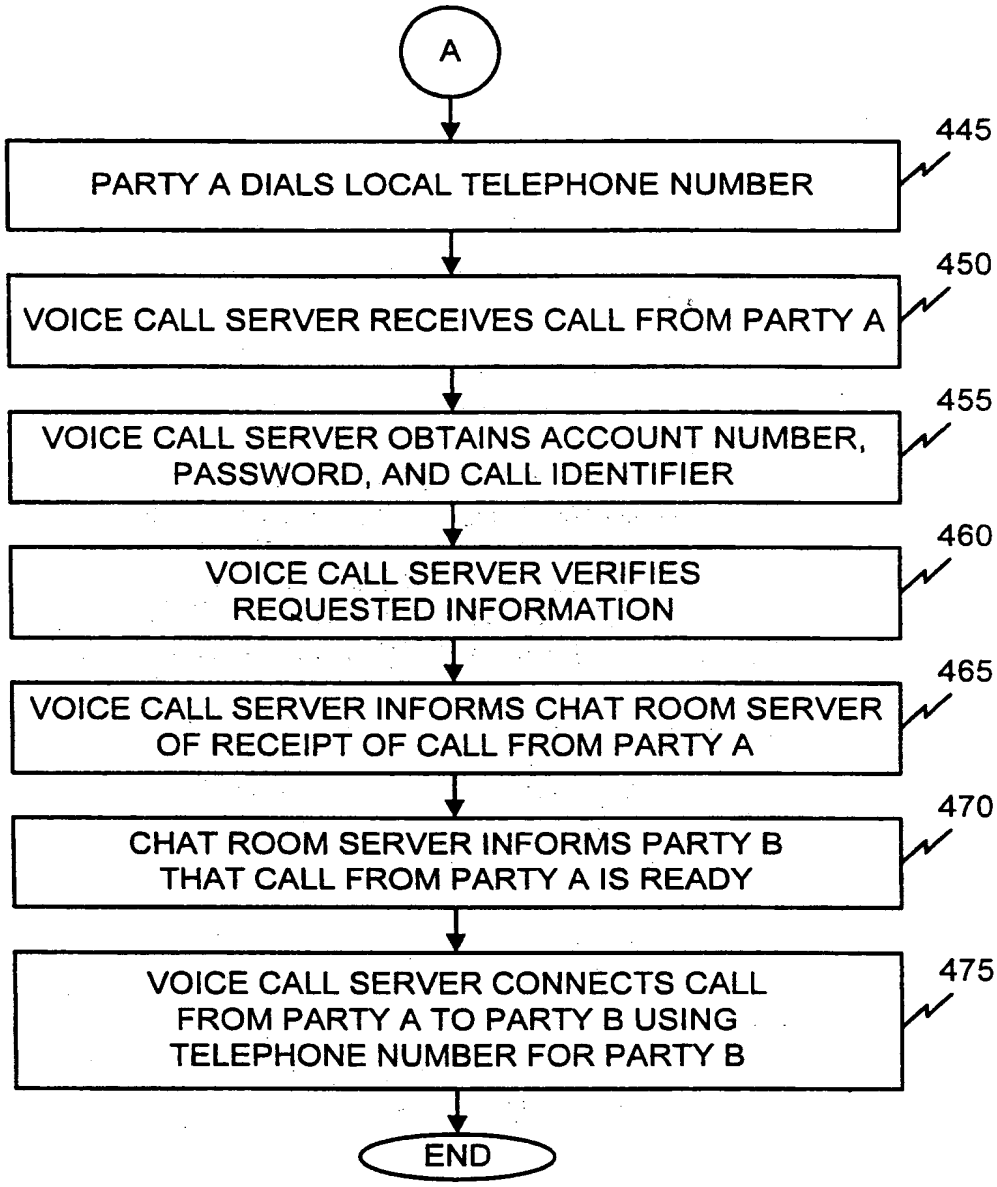
A
PARTY A DIALS LOCAL TELEPHONE NUMBER
445
VOICE CALL SERVER RECEIVES CALL FROM PARTY A
450
VOICE CALL SERVER OBTAINS ACCOUNT NUMBER, PASSWORD, AND CALL IDENTIFIER
455
VOICE CALL SERVER VERIFIES REQUESTED INFORMATION
460
VOICE CALL SERVER INFORMS CHAT ROOM SERVER OF RECEIPT OF CALL FROM PARTY A
465
CHAT ROOM SERVER INFORMS PARTY B THAT CALL FROM PARTY A IS READY
470
VOICE CALL SERVER CONNECTS CALL FROM PARTY A TO PARTY B USING TELEPHONE NUMBER FOR PARTY B
475
END

FIG. 4B

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US00/29792

A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) :H04M 3/56; H04L 12/16, 12/56
US CL :370/259, 356; 379/201
According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 370/259, 260, 261, 352, 353, 354, 356; 379/201, 202

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

NONE

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

EAST
search terms: anonymous voice communication, voip

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X --- A	US 5,818,836 A (DUVAL) 06 October 1998, col. 1, line 48-65.	46 --- 1-45
Y,E	US 6,148,067 A (LEIPOW) 14 November 2000, see col. 3, line 28-col. 7, line 57.	1-45
Y,E	US 6,175,619 B1 (DESIMONE) 16 January 2001, col. 3, line 56-col. 7, line 55.	1-45

☐ Further documents are listed in the continuation of Box C. ☐ See patent family annex.

*	Special categories of cited documents:	"T"	later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"A"	document defining the general state of the art which is not considered to be of particular relevance	"X"	document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"E"	earlier document published on or after the international filing date	"Y"	document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"L"	document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"&"	document member of the same patent family
"O"	document referring to an oral disclosure, use, exhibition or other means		
"P"	document published prior to the international filing date but later than the priority date claimed		

Date of the actual completion of the international search
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